ABSTRACT

In some hospitals infusion is still done manually, the nurses should count how many droplets using a watch in a minute, this method is still far from the level of accuracy. Infusion pump is a medical aid that has functions to control and ensure the correct dose of infusion fluid that is given to patients under treatment. The purpose of this study is to analyze the accuracy of the TCRT 5000 as a drop sensor, based on readings of the infusion pump monitoring system. This module consists of a TCRT 5000 drop sensor module, comparator circuit, monostable circuit, stepper motor, L298N motor driver, and ATmega328 microcontroller. The droplets are detected by the TCRT 5000 sensor, then amplified by a comparator and monostable circuit, then the flow rate and remaining volume readings are generated by the ATmega328 microcontroller. Furthermore, this data is sent to the Personal Computer (PC) via wireless HC-11.

The results of the flow rate module measurement show that the highest error value is 4% at the 30 ml/hour setting, and the lowest error value is 1% at the 60 ml/hour

setting. While the results of the flow rate measurement using an Infuse Device Analyzer, the highest error value is 2,2% at the 30 ml/hour setting, and the lowest error value is 0,58% at the 100 ml/hour setting. This infusion pump monitoring is designed centrally to facilitate the nurse's task in monitoring the infusion dose accurately that is given to the patient.

Keywords : Infuse Pump, Central Monitoring, TCRT 5000, Wireless.